AMENDMENTS TO THE CLAIMS:

Please amend claims 1, 7 and 9 as follows and cancel claim 6 without prejudice as follows.

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (currently amended) A transistor including at least one narrow bandgap region under compressive mechanical strain comprising at least one of a doped p-type material and a material containing an excess of holes, wherein said narrow bandgap region is in contact with at least one layer having a different lattice constant and said narrow bandgap region is subject to said compressive mechanical strain, wherein there are at least two further layers, one on each side of said narrow bandgap region<u>, wherein said transistor is a quantum-well FET</u>.

2. (previously presented) A transistor according to claim 1 wherein said narrow bandgap region is arranged for majority carrier transport.

3. (cancelled).

4. (cancelled).

5. (previously presented) A transistor according to claim 1 wherein said narrow bandgap region comprises InSb or InAs.

6. (cancelled).

7. (currently amended) A transistor according to claim ~~6~~1 wherein the quantum well is provided by a primary conduction channel and at least one secondary conduction channel immediately adjacent and in contact with the primary channel, the secondary channel having an effective bandgap greater than the effective bandgap Eg (effective) of the primary channel, wherein the modulus of the difference between the effective impact ionisation threshold IIT (effective) and the effective conduction band offset ΔE_C (effective) between the primary and secondary channels being no more than 0.5 Eg (effective).

8. (original) A transistor according to claim 7 wherein the quantum well is provided by a primary conduction channel and at least one secondary conduction channel immediately adjacent and in contact with the primary channel, the secondary channel having an effective bandgap greater than the effective bandgap Eg (effective) of the primary channel, wherein the modulus of the difference between the effective impact ionisation threshold IIT (effective) and the effective conduction band offset ΔE_C (effective) between the primary and secondary channels being no more than 0.4 eV.

9. (currently amended) A transistor according to claim ~~6~~1 in the form of an extracting transistor characterised in that (a) it is a field effect transistor incorporating a conducting region consisting at least partly of a quantum well; (b) the quantum well is in an at least partly intrinsic conduction regime when the transistor is unbiased and at a normal operating temperature; and (c) it includes at least one junction which is biasable to reduce the intrinsic conduction in the

quantum well and confine charge carriers predominantly to one type only corresponding to an extrinsic saturated regime.

10. (previously presented) A transistor according to claims 1 wherein the transistor is an n-p-n bipolar transistor.

11. (original) A transistor according to claim 10 with a vertical geometry having a base region provided with a base contact, emitter and collector regions arranged to extract minority carriers from the base region, and a structure for counteracting entry of minority carriers into the base region via the base contact, wherein the base region has a bandgap of greater than 0.5 eV and a doping level greater than 10^{17} cm^{-3}.

12. (previously presented) A transistor according to claim 1 wherein the narrow bandgap is no more than 1.0 eV.

13. (previously presented) A complementary logic circuit comprising a transistor according to claim 1.

14. (previously presented) An integrated circuit comprising a transistor according to claim 1.

15. (cancelled)

16. (previously presented) A quantum-well field effect transistor including at least one narrow bandgap region or layer that is doped p-type or contains an excess of holes and is subject to compressive mechanical strain, wherein said transistor incorporating a conducting region consisting at least partly of a quantum well; (b) the quantum well is in an at least partly intrinsic conduction regime when the transistor is unbiased and at a normal operating temperature; and (c) it includes at least one junction which is biasable to reduce the intrinsic conduction in the quantum well and confine charge carriers predominantly to one type only corresponding to an extrinsic saturated regime.

17. (previously presented) A transistor including at least one narrow bandgap region under compressive mechanical strain comprising at least one of a doped p-type material and a material containing an excess of holes, wherein the transistor is a quantum-well FET and the quantum well is provided by a primary conduction channel and at least one secondary conduction channel immediately adjacent and in contact with the primary channel, the secondary channel having an effective bandgap greater than the effective bandgap Eg (effective) of the primary channel, wherein the modulus of the difference between the effective impact ionisation threshold IIT (effective) and the effective conduction band offset ΔE_C (effective) between the primary and secondary channels being no more than 0.5 Eg (effective)

18. (previously presented) A transistor according to claim 17, wherein the quantum well is provided by a primary conduction channel and at least one secondary conduction channel immediately adjacent and in contact with the primary channel, the secondary channel having an effective bandgap greater than the effective bandgap Eg (effective) of the primary channel,

wherein the modulus of the difference between the effective impact ionisation threshold IIT (effective) and the effective conduction band offset ΔE_C (effective) between the primary and secondary channels being no more than 0.4 eV.